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Leader Development across the Lifespan: A Dynamic Experiences-grounded Approach

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In the last several decades, researchers have proposed that on-the-job experiences, deliberate practice, leader development programs, and the developmental culture in organizations aid leader development (see Day & Thornton, 2018). Even though formal leader development programs are common in organizations, real time, on-the-job experiences are considered to be potent factors in leader development (McCall, 2004; McCall, 2010). The importance of on-the-job experiences can be reflected by the well-known (but non-validated) 70/20/10 rule: the notion that 70% of leader development comes from on-the-job experiences, 20% from developmental relationships and 10% from formal programs (Day & Thornton, 2018). We contend that the traditional way of considering leader development as occurring primarily in the workplace and during adulthood is limited. We argue that leader development is a process across the lifespan, with much of it starting during the early years of life, even before an individual enters any formal schooling, and continuing even post retirement. Furthermore, leader development occurs with the interactions of multiple factors such as learning, practice, feedback, and self-views (Day, Harrison, & Halpin, 2009; Kolb, 2014).

Developing successful leaders requires an understanding of the precursors, processes, and outcomes of effective leader development, and must be accompanied by a body of research evidence and useful theoretical foundations. Recent reviews identify the general strengths and weaknesses of theory and research in leader and leadership development (cf. Day & Dragoni, 2014; Day, Fleenor, Atwater, Sturm, & McKay, 2014; DeRue & Myers, 2014; Dinh et al., 2014), and suggest future research. Table 1 provides a brief summary highlighting the current state of leader development research and theory to help underscore the contributions of a lifespan experiences-grounded model. Though a

number of meta-analyses provide evidence that leadership skills can be developed, these studies also identify limitations in the study methodologies and outcome measures (cf. Lacerenza, Reyes, Marlow, Joseph, & Salas, 2017). Moreover, in some respects, the study of leadership development has also been hampered by the multitude of different frameworks of leader behaviors that result in somewhat fragmented leader development theories. In addition, recent conceptualizations of leadership including paradoxical leadership (Zhang, Waldman, Han, & Li, 2015), paternalistic leadership (Westwood & Chan, 1992), inclusive leadership (Nembhard & Edmondson, 2006) and work on servant leadership (Eva, Robin, Sendjaya, van Dierendonck, & Liden, 2019) may underscore further research on unique developmental needs. As noted by Day et al (2014), developing individual leaders and developing effective leadership processes involves more than simply deciding which leadership theory is to be used to motivate effective development.

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With respect to leader development research on "technologies", developmental trajectories (Day & Sin, 2011), self development (Boyce, Zaccaro, & Wisecarver, 2010), and borrowing from adult development (Day, Harrison, & Haplin, 2009) show that an integrated theory of leader development moves beyond skills training and provides for mechanisms that incorporate the role of leader self-view development as well as skills training, all within the context of developmental experiences. These developmental experiences may occur in various settings including family, school, as well as workplace across one's lifelong journey.

A holistic model of leader development becomes necessary then, across contexts and time, and incorporates more detailed and nuanced processes such as those studied in recent theorizing on the dynamic process of leader emergence (Acton, Foti, Lord, &

Gladfelter, 2019). There has also been relatively little consideration of how context drives both the content and acquisition of leader development. Global leadership development, for example, requires leading across contexts with different skill sets to work in the complexity of multinational corporations. For example, in considering global leadership (that which focuses on requirements for leaders across environments), the concept of global mindset is important (Earley, Murnieks, & Kosakowski, 2007). From a developmental viewpoint then, in this example, understanding how global mindset develops across the lifespan, how it is incorporated into one's leader identity, and how developmental experiences are effectively processed are all important in enhancing one's global mindset. This example also underscores the importance of understanding how leaders think, and therefore, develop cognitive skills to fulfill the leader role (Antonakis, Simonton, & Wai, 2019).

Therefore, what we have learned about leader development, and proposed models of leadership development, provide a guide through which we can better understand this life-long developmental process. First, because research has suggested that leadership development is a dynamic process that varies across time and context (Castillo & Trinh, 2018; Day & Dragoni, 2015; Oc, 2018) and is an ongoing and life-span process (Day, 2000; Day, 2011; Day, Harrison, & Halpin, 2009), an effective theory of leadership development must include consideration of time and context. From a life-span developmental psychology perspective, this lifelong journey traverses various stages from preschool, childhood, adolescence, to emerging adulthood, adulthood, and late adulthood (Arnett, 2000; Erikson & Erikson, 1998; Murphy & Johnson, 2011). At the same time, all development, including leader development, occurs within specific contexts (Cushner, McClelland, & Safford, 2015), and the contexts change across one's life (Gauvain & Perez, 2015). The contexts in which an individual is embedded include the original family (early years), school, peer

groups, current family, workplace (organization), community, country, and so forth (Bronfenbrenner, 1986; Bronfenbrenner, 1994). Each of these contexts is also influenced by historical, social, and cultural factors (Kerig, 2016). Therefore, focusing only on workplace experiences as crucial for leader development is limited. The study of experiences in other developmental stages and contexts has been largely neglected.

Second, only developmental experiences have large impacts on one's capacity to lead. All of us have myriad experiences within and outside of the workplace, but not all experiences are developmental. Whereas daily experiences, in general, are ambiguous and multi-faceted, making it difficult for us to use them for effective leader development (Day, 2010; Tesluk & Jacobs, 1998), some experiences are more challenging and significant than others. According to recent research, a combination of features such as high stakes, complexity, pressure, and novelty make an experience challenging, because they require one to get out of their "comfort zone" (Brown, 2008; McCall, 2010). Additionally, for an experience to be considered "excellently developmental" for leader development, it should have three qualities: assessment, challenge, and support (McCauley, Ruderman, Ohlott, & Morrow, 1994; Van Velsor & McCauley, 2004). During our lifelong journey, there are specific developmental experiences that can be potential windows (or opportunities) for leader development, such as captaining a sports team or becoming a parent, which have been mostly neglected in leader development research.

Third, developmental experiences for leader development are conditional. Extant research on learning from work experiences overlooks the boundary conditions, thus making the development process seem easier than it is (Day, 2010). We do not automatically learn from experiences, and experiences do not automatically improve our leader development (DeRue & Wellman, 2009). Learning from experience requires deliberate practice for behavioral reinforcement, which has often been overlooked (Day, 2010). Additionally,

elements (e.g., self-awareness, leader self-identity, and leader self-efficacy) and environment-related elements (e.g., feedback and others' support) that affect the quality of learning from experiences have been understudied (Day & Thornton, 2018). Therefore, the conditions and mechanisms through which developmental experiences impact leader development are important to consider.

To address the aforementioned issues, our goal is to consolidate the extant literature on leader development across the lifespan, and to broaden the time periods of development under study to account for the earliest years up through retirement. Our view utilizes a developmental perspective to look into critical experiences in each stage of development that can influence leader development across time. These experiences influence leader development through the mediating role of one's experiences processing system, which includes the process of learning, practicing and applying with feedback from experience (Kolb, 2014; Kolb & Kolb, 2009), and the leader self-view system, which includes leader self-awareness, self-identity, and self-efficacy (Day & Dragoni, 2015). Our model seeks to show how leader development can be influenced by a dynamic interaction between the two systems. The eventual goal is to help individuals realize and take full advantage of their daily developmental experiences to propel their capacity to lead. There are also implications for enhancing process-oriented leadership research (Day, 2000) and advancing leadership pedagogical practices.

We propose a model of experiential "windows" that present somewhat unique opportunities for leader development at each stage in the lifespan (see the windows in Figure 1). The model is composed of four elements. Starting from the bottom of the model, the lowest tier consists of individual foundational traits (genetic predisposition, foundational traits); the second tier illustrates six stages of development across the lifespan (nascent stage in preschool, externally-driven stage in childhood, experimental exploration stage in

adolescence, self and opportunity oriented stage in emerging adulthood, purpose-driven stage in adulthood and legacy-making stage in late adulthood), and the critical developmental experiences within each stage that influence leader development. These critical experiences, defined by Van Velsor and McCauley (2004), underscore that individuals may have either been directly involved in or indirectly exposed to these developmental experiences. The third tier portrays the mediating role that the experience processing system and the leader self-view system play in developing leadership expertise. The systems ultimately impact leader development, which is the fourth tier, through a nonlinear and dynamic process.

The definition and indicators of leader development

Within this paper, our proposed conceptual model focuses on leader development via experiences across the lifespan, playing close attention to the nature and outcomes of these experiences. Therefore, it is necessary to provide a clear definition of leader development as a foundation for the lifespan experiences-grounded model. According to the principles and guidelines for defining a construct (Hughes, Lee, Tian, Newman, & Legood, 2018; MacKenzie, 2003; Podsakoff, MacKenzie, & Podsakoff, 2016), a non-outcome-based definition of leader development is critical. Past definitions of leader or leadership development do not always meet this criterion.

For the purposes of this paper, we derive a definition of leader development outside of precursors and consequences using both our understanding of human development and past work on leader and leadership development. Common definitions of leadership development typically focus on what is learned that helps one become more effective in a leadership role. For example, McCauley and colleagues (1998) defined leader development as “the expansion of a person’s capacity to be effective in leadership roles and processes. Leadership roles and processes are those that facilitate setting direction, creating alignment, and maintaining commitment in groups of people who

share common work" (p. 2). This definition neglects the aspect of time across development; therefore, we borrow from research on human development. Here "development" is defined as a lifespan process in which an individual's biological, cognitive and socioemotional changes occur within multiple contexts including families, schools, workplaces, countries, and so on (Santrock, 2016). A lifespan leadership development approach then suggests that leader development would include "every form of growth or stage of development in the life-cycle that promotes, encourages and assists the expansion of knowledge and expertise required to optimize one's leadership potential and performance" (Brungardt, 1996, p. 83). Day's (2000) focus on leader development as adult development includes a human capital (intrapersonal) perspective that considers leader development as "developing individual-based knowledge, skills, and abilities associated with formal leadership roles" (p. 584). Moreover, in Day's view, **leader** development should be differentiated from the concept of **leadership** development, which is defined from the social capital (interpersonal) perspective as "building networked relationships among individuals that enhance cooperation and resource exchange in creating organizational value" (Day, 2000, p. 585).

Therefore, for purposes of this paper, we view leader development is the process by which one increases his or her ability to exercise influence in leadership situations that become increasingly more complex and varied, during the lifespan process with multiple developmental stages and various contexts. Leader development as a multidimensional development process includes intrapersonal, interpersonal, and organizational level influence one has inside and outside of leadership roles to help drive individuals toward performance goals. Notice that this definition is for leader development, not of the more commonly used term, leadership development. Our research is directed toward

developing individuals across the lifespan; therefore, leader development is our exclusive focus.

According to the definition above, we include various indicators of leader development that can be categorized into several types: 1) leader emergence, the extent to which one individual is perceived as a leader by others; 2) leadership effectiveness, the performance one individual has achieved in leadership roles; 3) leadership behaviors, such as directing and managing; 4) leadership behavior styles, such as task-oriented style and personal-oriented style; 5) leadership-related skills or capabilities, such as negotiating skills, and conflict-management skills; 6) performance in certain types of leadership, such as transformational leadership and ethical leadership; 7) implicit leadership theory, such as one's implicit assumptions and expectations on a qualified leader's characteristics, traits, and qualities; 8) other aspects, such as leadership readiness and leadership succession.

Individual Differences Foundation for Leader Development

Leadership researchers have examined the role of individual differences between leaders and nonleaders for many years. The prevalence of trait theory during the 1930s-1950s (Chapple & Donald, 1946; Flemming, 1935; Pigors, 1933; Stogdill, 1948) and the renaissance of the role of traits in the first two decades of the 21st century (Antonakis, Day, & Schyns, 2012; Dinh & Lord, 2012; Mumford, Watts, & Partlow, 2015) indicate that traits serve as a basis for leadership emergence and performance, as well as providing a basis for individual leader development. With increasing scientific studies on trait-based leadership and the advances of corresponding methodologies, research has established that both the propensity to emerge as a leader and to further develop one's leadership can be partially

attributed to genetic predisposition and certain foundational traits (Zaccaro, Green, Dubrow, & Kolze, 2018).

Traditionally, developmental theorists considered the relative contribution of "nature and nurture" in understanding genetic and environmental contributions for human psychological traits across the lifespan (Plomin, DeFries, Knopik, & Neiderhiser, 2016). Today, an important developmental approach uses the biopsychosocial viewpoint that incorporates the interactions of genetics, or innate traits and biology, psychological, and socio-environmental factors (e.g., Dodge & Pettit, 2003). Within this combined approach, considerable evidence from replicated findings on the genetic and environmental origins of individual differences have consistently shown that most psychological traits are significantly influenced by genetic factors (Cardno et al., 2012; Plomin, DeFries, Knopik, & Neiderhiser, 2013; Vucasović & Bratko, 2015; see Polderman et al., 2015 for meta analysis of twin studies). For example, with regard to intelligence, recent genome-wide meta-analyses have shown that intelligence is highly heritable and genes matter much more than we expect (Sniekers et al., 2017; Savage et al., 2018). Family resemblance (i.e., shared family environmental influence) for intelligence in twin and adoption studies has been attributed to nature rather than nurture (Plomin & von Stumm, 2018). In other words, genetics accounts for the similarity of intelligence among siblings (Plomin, Plomin, DeFries, Knopik, & Neiderhiser, 2016), which is an important trait for leadership.

Twin-sampled studies have suggested that heritability explains approximately one third of the variance in leadership position attainment (Arvey, Rotundo, Johnson, Zhang, & McGue, 2006; Arvey, Zhang, Avolio, & Krueger, 2007; Li, Arvey, Zhang, & Song, 2012). Researchers have specifically identified the rs4950 gene that is significantly associated with leadership role occupancy (De Neve, Mikhaylov, Dawes, Christakis, & Fowler, 2013). It has been shown that leadership is associated with heritable personality traits such as

extraversion, sociability, and gregariousness (Barrick & Mount,1991; Bouchard & Loehlin, 2001; Judge, Bono, Ilies, & Gerhardt, 2002; Riemann, Angleitner, & Strelau, 1997). Furthermore, the propensity to emerge as a leader can be partially explained by one's cognitive ability, motives and values, gender, physical features, and so forth (Judge & Long, 2012; Reitan & Stenberg, 2019; Zaccaro, Kemp, & Bader, 2004; Zaccaro, LaPort, & Jose, 2013; Zaccaro, Green, Dubrow, & Kolze, 2018). For example, Wai's (2013, 2014) retrospective studies based on the longitudinal data of groups of American elite individuals, including the top leaders in business and politics, showed that a significant percentage of these elite leaders or experts were found to be in the top 1% of cognitive ability at an early age. Considering the highly heritable nature of cognitive ability (Bouchard, 2004; Plomin & von Stumm, 2018), researchers have proposed to update the traditional phrase "made, not born" with "born, then made", in terms of the development of expertise in various domains, including leader development (Antonakis, Simonton, & Wai, 2019; Wai, 2014). Considering the foundational influences of heritable traits on human development (including leader development), we review the evidence of the gene x environment interaction on human traits.

After controlling for genetic influences, environmental influences, play an integral role in the development of foundational traits too. Extant research has suggested that there are no traits that are 100% heritable (Plomin,1989; Turkheimer, 2000) such that heritability typically accounts for 30% - 50% of the variance (Plomin & von Stumm, 2018). Changes in the environment can drive the variation of genes as well (Bedrosian, Quayle, Novaresi, & Gage, 2018; Kaminski et al., 2018)—they can change gene expression both in utero, within the early developmental stages, and throughout the lifespan (Feil & Fraga, 2012). It is important, then, to recognize the substantial effects of both genetic and environmental influences on leader development. First, we recognize the phenotypic differences explained

by genetic factors and appreciate that not everyone can become a top leader despite effortful time and practice. Moreover, many organizations must develop leaders who may not have a strong genetic predisposition to be effective in leadership roles. Secondly, we acknowledge the role of epigenetics on leader development. According to the gene-environment interaction perspective, changes in the environment turn certain leadership genes "on" or "off" (Joseph, 2001; Polderman et al., 2015). For instance, early life experiences in a warm and supportive family weaken the effects of the genetic factor on leader emergence, but early life experiences in poverty-stricken and higher-conflict family strengthens the genetic effects on leadership (Barling & Weatherhead, 2016; Plomin, Defries, & Loehlin, 1977; Zhang, Ilies, & Arvey, 2009). Therefore, although we acknowledge that genetic influences sow the seeds for leader development and that the influence of experiences cannot be studied independent of the genetic component, the focus of the current paper is toward a context-driven developmental experience approach.

Experiential Windows Across the Lifespan

Considering that most successful leaders are quick to acknowledge the role of relatively important work and life experiences in developing their leadership ability, researchers have proposed that experience, especially developmental experience, is a powerful trigger for leader development (DeRue & Wellman, 2009; McCall, 2010). In this section, we will explore the nature and importance of specific experiential windows across the lifespan, examine their potential influences on leader development outcomes, and outline how life-span developmental psychology helps us understand leader development. The critical developmental experiences for leader development at each developmental stage of the life-span journey are described below. Within each stage, various criteria are described in understanding leader "success" in terms of leader

emergence or effectiveness based on behaviors or task and stage appropriate outcomes. The windows for each developmental stage are shown in Figure 1.

----Insert Figure 1 here ----

I. Nascent stage *(preschool, 0-6 years of age)*

Apart from prenatal or biological readiness before birth, the preschool stage is regarded as the very first period of the lifespan journey. It is termed the "nascent stage" in the current study because it lays the foundation for subsequent stages. The nascent stage, especially the first 3 years, is the critical period for forming attachment relationships with caregivers (usually parents) (Erikson & Erikson, 1998). In addition, during the preschool years, individuals spend a large portion of time on multiple types of play (Brownell & Brown, 1992). Both attachment and play are critical experiences with potential influences on an individual's lifelong leader development.

It is important to note that here, in the very beginning years of life, conceptualizations of leadership (ILT; Lord & Hall, 2005; Lord, Gatti, & Chui, 2016; Shondrick, Dinh, & Lord, 2010) begin to form. Implicit theories of leadership contain expectations about leadership traits and attributes and persistently remain associated with typically male leaders (Offermann & Coats, 2018). These expectations play an important role in how individuals think about leaders and leadership, and how they begin to form their own leader identity. Keller (1999, 2003) noted the associations of parental traits, caregiver behaviors, and other influences in early childhood may play a role in implicit leadership theories of development.

Attachment to Caregiver. The term "attachment" refers to the emotional ties between infants and their primary caregivers; it is an important symbol of affective socialization for infants (Bowlby, 1969). Through the infant-caregiver interaction within the first several years, infants can become either securely attached or insecurely attached

depending on the accessibility of desired proximity and protection provided from caregivers (Bowlby, 1982). An infant's attachment experiences with primary caregiver's aid in forming his or her mental representations of the self, the world, and relationships with others (Berlin & Cassidy, 1999; Bowlby, 1988). According to attachment theory, the quality of early attachment is a powerful predictor of later emotional and social outcomes (Ainsworth, 1989; Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). Based on the social nature of leadership (Day, 2000), and the analogy between parenthood and leadership (Popper & Mayseless, 2003), researchers have applied attachment theory to the domain of leadership and emphasized the importance of early attachment (Mack et al., 2011; Popper, 2011; Popper & Amit, 2009a).

Secure-attachment refers to the concept whereby children can explore their outside world knowing they can come back to their attachment figures to be comforted and welcomed (Bowlby, 1988). There are multiple factors influencing the establishment of secure attachment. O'Connor, Croft, and Steele (2000) have proposed that behavioral genetics is an important consideration in understanding attachment continuity and parental sensitivity. There is evidence suggesting that the gene-environment interaction for attachment styles, specifically the DRD4 7-repeat polymorphism increases the likelihood of disorganized attachment (Bakermans-Kranenburg & Van IJzendoorn, 2007). However, given differential susceptibility, favorable environmental conditions facilitate positive outcomes for susceptible children (Bakermans-Kranenburg & Van IJzendoorn, 2007). Bokhorst et al. (2003) have shown that more than half of the variance in secure attachment comes from the shared family environment. A series of meta-analyses have suggested that parental sensitivity or responsiveness is a substantial antecedent of secure parent-infant attachment (De Wolff & Van IJzendoorn, 1997;

Lucassen et al., 2011; Nievar & Becker, 2008). Therefore, secure-attachment is more state-like and is significantly influenced by the caregiver's characteristics and behaviors.

From a longitudinal perspective, secure attachment to parents in early childhood is positively associated with charismatic leadership in emerging adulthood (Towler, 2005). A significant association was found between secure attachment in infancy and leadership ratings 15 years later (Englund, Levy, Hyson, & Sroufe, 2000). Individuals with secure attachment at early ages have more ego resources or social capital for seeking out leadership roles (Joplin, Nelson, & Quick, 1999; Murphy & Johnson, 2011). Conversely, attachment insecurity is adversely associated with leadership outcomes. Individuals with insecure attachment at early ages experience more lack of trust to empower followers when they occupy leader positions in adulthood (Mayseless, 2010). In addition, one's infant attachment style with caregivers is consistent with his or her adulthood attachment style in close relations (Popper & Mayseless, 2003; Mayseless, 2010). One's secure attachment in adulthood is closely related to his or her implicit leadership theories (Keller, 2003), leader emergence in team tasks (Berson, Dan, & Yammarino, 2006; Popper & Amit, 2009b), prosocial motives to lead (Davidovitz, Mikulincer, Shaver, Izsak, & Popper, 2007), transformational leadership behaviors (Eldad & Benatov, 2018; Popper, 2002; Popper, Mayseless, & Castelnovo, 2000), as well as leadership effectiveness in terms of leader-follower relationship and followers' performance (Davidovitz et al., 2007; Popper & Mayseless, 2003; Ryff & Singer, 1998). In sum, research has indicated how attachment relationships in early childhood impact future leadership outcomes, but more controlled experimental and field studies are needed.

Play. For individuals at the preschool stage, play refers to various types of pleasurable activities preschoolers are engaged in, such as symbolic play, social play, and

games (Roseberry, Hirsh-Pasek, & Golinkoff, 2014; Santrock, 2016). Play provides a pretend or imaginary context where preschoolers, can explore the world, express themselves, and interact with others (Erikson, 1950; Mainemelis & Ronson, 2006). According to cognitive developmental theories of play (Piaget, 1962; Vygotsky, 1978, 1997), play has an important role in children's conceptual and cognitive development in terms of learning ability, adaptive flexibility, and innovation capacity. From a social development perspective, the interpersonal interactions that occur in social play such as gaining entry into groups, taking turns, cooperating with other participants, resolving conflicts, and maintaining harmony, are important experiences that impact preschoolers' social competencies (Casby, 2003; Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Evaldsson & Corsaro,1998). The cognitive and social competencies gained through play set the stage for leader development, due to the cognitive complexity and social nature of leadership (Day & Dragoni, 2015).

In fact, play provides a good place for preschoolers to freely exhibit or exercise leadership behaviors. Observations of children's spontaneous play revealed that children can be "bullies" when they impose their choices over a group, or "diplomats" when they voice their preferences indirectly (Parten, 1933). Similarly, children at the "center" show more consideration for their playmates than those at the "periphery" (Fukada, Fukada, & Hicks, 1994). Children of preschool age can demonstrate individual leadership styles such as the "director," who is dominant and bossy, the "free spirit," who is soft and charismatic, the "manager," who emerges as a leader because of advanced communicative and cognitive abilities, and the "power man," who is pushy and physically assertive (Lee, Recchia, & Shin, 2005). In this vein, play helps develop leader identities, as well as decision making and interpersonal skills, which are important leader characteristics (Kark, 2011). Moreover, play is ludic, representing a safe transitional

space between external and internal reality where children can express themselves without fear of judgment; this space makes play contingent to experiential learning (Kolb & Kolb, 2010). As discussed before, leadership in social play or games emerges as a relational and collective construct. Therefore, play helps children form awareness of interpersonal and team dynamics as they include or exclude certain peers (Shin et al., 2004). Moreover, children's social dominance in play is linked to their prosocial behavior, in terms of sharing and including others in play (Ostrov & Guzzo, 2015). The experiences in social play also improve preschoolers' perspective-taking performance (Burns & Brainerd, 1979), which aids one's moral development and thus has implications for moral or ethical leadership later in life (Day, Harrison, & Halpin, 2009; Kohlberg, 1981).

II. Externally-driven stage *(childhood, 6-12 years of age)*

In elementary school, children's involvement in activities at home and at school fosters the growth of their communicative, cognitive, and social skills. These are the "building blocks" of later leader development. Children at this stage are dependent on external influencers, such as their parents, teachers, and authority figures to provide them with opportunities whereby they can gain leadership skills, hence the term "externally driven." Cooperative learning experiences in class, participation in household chores, and sibling relationships are critical experiences that foster leader development at this stage.

Cooperative Learning Experiences. Individuals start to formally learn knowledge in structured classes at the elementary school stage. In contemporary educational systems, where teamwork and collaboration are emphasized, cooperative learning methods have been increasingly used in the classroom by elementary school teachers (Yamaguchi, 2001). Cooperative learning refers to instructional methods in which pupils learn knowledge by collaboratively completing a task as a group or team,

with the aim of bettering the learning experience (Anderson & Pearson, 1984; Sun, Anderson, Perry, & Lin, 2017; Yamaguchi, 2001). It is associated with a wide variety of children's development outcomes, such as intergroup relations, social cohesion, and peer acceptance (see Slavin, 1995, 2010, 2013; Johnson & Johnson, 1998; Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003). The most prominent feature of cooperative learning is open participation for pupils, that is, there are no assigned leader roles in advance, and leaders emerge based on a variety of factors (Li et al., 2007; Miller, Sun, Wu, & Anderson, 2013). Cooperative learning experiences provide children opportunities for leader emergence, as they emphasize group work for cohesion and communication in early leadership (Yamaguchi, 2001). For example, leaders emerged in cooperative problem-solving groups of Chinese 5th graders (Sun, Anderson, Perry, & Lin, 2017), and in a study using social metrics, girls emerged as leaders when classmates saw them contributing good ideas to class discussions (Li et al., 2007).

Participation in household chores. Performing housework chores has traditionally been seen as a means of children's socialization, and has a significant impact on children's psychosocial functioning (Blair, 1992; McHale, Bartko, Crouter, & Perry-Jenkins, 1990). Primary-school-aged children are usually assigned by parents to do family-care tasks such as cleaning dishes, mowing lawns, and some self-care tasks such as making their beds and picking up their own study materials (Cogle & Tasker, 1982; Goh & Kuczynski, 2014). Developmental psychologists have proposed that children's participation in housework is associated with the development of responsibility (Kuczynski & Kochanska, 1995). Leadership research has revealed that an individual exhibiting responsibility is more likely to be perceived as a leader by other members in a group (Judge et al., 2002). In particular, acquisition of responsibility is seen as essential to becoming a servant leader (Greenleaf, 1996; Salusky et al., 2014) and an ethical leader

(De Hoogh & Den Hartog, 2008). Furthermore, involving children in household chores is linked to child prosocial behavior and spontaneous helping (Goodnow, 1988; Grusec, Goodnow, & Cohen, 1996; Waugh, Brownell & Pollock, 2015), which are important childhood precursors to leader development (Popper & Mayseless, 2007). In addition, because self-concept and a cohesive family environment have been found to be related to leader emergence in adulthood (Oliver et al., 2011), we believe that household chores can also boost children's self-concept through the sense of accomplishment that comes with completing an obligation. Moreover, chores can foster cohesiveness in families whereby each member acts as a valuable contributor.

Sibling interactions. Families with more than one child provide a good context for children's everyday interpersonal interactions. We propose that sibling interactions can cultivate the development of qualities that are leadership-oriented. Research shows that in early sibling relationships or interactions, older siblings generally take the more dominant roles of teachers, managers, and even leaders of their younger siblings (Yaremych & Volling, 2018). The evidence above is consistent with the established finding that birth order influences manifestations of leadership (Bass & Bass, 2008; Steinberg, 2001), given the fact that the eldest is usually assigned responsibility for taking care of their siblings and are expected to serve as role models for them (Andeweg & Berg, 2003). Birth order can affect leadership style, and first-borns tend to be task-oriented, whereas later-borns are relationship-oriented (Chemers, 1970; Hardy, 1972; Hardy, Hunt, & Lehr, 1978). In addition, sibling relationships teach the importance of negotiation with limited opposition and planning for mutual benefit (Ross, Ross, Stein, & Trabasso, 2006). Negotiation skills such as these are considered to be a requirement for quality leadership (Duignan, 1988). In these ways, sibling interactions can help foster leadership-related skills such as communication, negotiation, and task-oriented skills.

III. Experimental exploration stage *(adolescence, 12-18 years of age)*

Adolescence is an important transition period involving physical, emotional, and mental changes. Individuals at this stage are in the process of developing a sense of who they are and how they view the world (Erikson, 1968; Erikson & Erikson, 1998). As they navigate through this period and form individual identities, adolescents should be provided with opportunities to make decisions independently, and interact effectively with both peers and significant adults (Van Linden & Fertman, 1998). Therefore, "experimental exploration" is an apt term to capture the developmental experiences relevant to leadership in this period. Van Linden and Fertman (1998) proposed that opportunities for adolescent leadership need to be provided through multiple contexts, including family, community, and school.

Extra-curricular activities. Adolescents in secondary schools can participate in a large number of extra-curricular activities (Shulruf, 2010). These activities, such as sports participation, outdoor survival challenges, and community service volunteering form an important medium through which adolescents can gain leadership skills (Hancock, Dyk, & Jones, 2012). These group activities not only play an important role in providing opportunities for adolescents' social learning about leadership, but they also provide scenarios in which adolescents can utilize leadership-related skills in real-world situations and thus develop their leadership potential (Murphy, 2011). A longitudinal investigation has shown a positive association between boys' membership in scouts or sports clubs and later leadership emergence; greater participation in extracurricular activities was related to leadership emergence (Reitan & Stenberg, 2019). Sports participation is also associated with leadership effectiveness (Atwater, Dionne, Avolio, Camobreco, & Lau, 1999). Kniffin and colleagues (2015) examined the sport-work relationship and found that those who participated in competitive or structured sports in

adolescence displayed significantly more leadership skills than did non-athletes. Additionally, a recent study suggests that adolescents' participation in a six-month community-based program was positively correlated with participants' leadership style identity and a sense of group belonging (Parkhill, Deans, & Chapin, 2018).

Peer interaction. It is evident that peers play an increasingly important role for adolescents and that peer social interaction is critical for psychological development (Brown, 2004). Social interaction at this developmental stage is featured through dyadic friendships and social networks (Cairns, Leung, Buchanan, & Cairns, 1995). The components of friendship such as companionship, emotional support, stimulation, and belongingness, facilitate social-emotional development which is associated with certain leadership-related variables such as emotional or social intelligence (Charbonneau & Nicol, 2002; Lopes et al., 2004). Peer popularity is found to be related to leader emergence; sociometrically popular adolescents are more frequently viewed as leaders by their peers (Coie & Dodge, 1983; Coie, Dodge, & Kupersmidt, 1990; Dodge, 1983). We would also expect more gender differences in leadership emergence at this stage for some behaviors because boys are often seen as more prototypical or "leader like," as well as cultural and ethnic differences in norms regarding who is the right "fit" for positions of leadership (Murphy & Johnson, 2011; van Knippenberg, 2011).

Parenting behaviors. Murphy (2011) proposed that parenting behaviors influence one's leader development from a long-lens perspective. In addition to attachment theory highlighted in the previous section, Popper and Mayseless (2003) have argued that parents serve as models of leadership, in terms of their caring and guiding duties. The link between parents as leaders provides evidence to support parenting's potential effects on children's future leader development, consistent with implicit leadership theory (Offermann, Kennedy, & Wirtz, 1994). Empirical research has

established the association between specific parenting behaviors or practices and leadership performance. For instance, Kudo, Longhofer, and Floersch (2012) showed authoritative parenting practices were positively associated with transformational leadership, and parental support is also related to leader emergence later in life (Reitan & Stenberg, 2019). A study based on the Fullerton Longitudinal Study data has suggested that warm and supportive parenting during the adolescent stage is associated with increased transformational leadership styles in adulthood (Oliver et al., 2011). However, we need to be cautious about the detrimental effects of parenting behaviors on offspring's leader emergence. For example, a recent study conducted on 1255 adolescents has revealed that overparenting behaviors (e.g., "helicopter parenting") are negatively associated with adolescents' leader emergence, and its association is serially mediated by adolescents' lower self-esteem and lower leader self-efficacy (Liu et al., 2019).

Role models. Adolescents are in the process of solidifying their self-identities, so having a role model, be it a parent, teacher, peer, a great person in history, or a social media influencer impacts this formation process (Bell, 1970). Leader role models are individuals in adolescents' real or virtual environments who might guide adolescents in their leadership growth process and serve to develop their "implicit leadership theory" formation process (Komives, Longerbeam, Owen, Mainella, & Osteen, 2006). According to social learning theory (Bandura, 1977), behaviors of role models are more effective in guiding or directing adolescents' behaviors, than simply telling teens what to do. Research by Flouri and Buchanan (2002) suggests that having a career role model positively influences adolescents' career motivation and maturity, which also aids leader development. Fellnhofer (2017) has revealed the significant effects of entrepreneurial role models on the entrepreneurial intentions of individuals aged 18-24, and on the mediation effect of entrepreneurial passion. That is, an adolescent looking up to a role

model such as Mark Zuckerberg, CEO of Facebook, can propel a desire to become a startup business leader. In addition, if the role models for adolescents are moral models, adolescents would be morally obligated to comply and follow morally ideal behaviors (Kohlberg, 1976; Blasi, 1980), which has significance for ethical and moral leader development (Day, Harrison, & Halpin, 2009). Moreover, gender-specific role models may also contribute to leadership development (Beaman, Duflo, Pande, & Topalova, 2012).

IV. Self- and opportunity-oriented stage *(emerging adulthood, 18-30 years of age)*

Emerging adulthood is the time period from the late teens through the twenties. It is increasingly considered the most profound adult developmental stage, particularly because in the present day, adults are postponing major life events such as marriage and parenthood until their 30s (Arnett, 2000, 2004). Developmental psychologists have described this stage as being one of limbo, instability, possibility, and self-focus (Arnett, 2007, 2014). According to self-determination theory (Deci & Ryan, 1985; Deci, Ryan, & Guay, 2013), human beings, especially young adults, have an inherent tendency to engage actively in various challenges and integrate new experiences into their sense of self in order to grow and achieve (Perreault, Cohen, & Blanchard, 2016). The development of leadership skills at this stage is driven by self-motives and opportunities that one can benefit from, hence the term "self & opportunity oriented." At this stage, individuals start to make decisions by themselves in the face of various opportunities.

Leadership courses. A sizable portion of emerging adults spend four or more years at college. Leadership courses taken during this time are essential for knowledge acquisition, leader identity, and leadership readiness (Komives, 2011; Reichard & Paik, 2011). Researchers have identified the important role of leadership knowledge during the process of forming a leader identity (Lord & Hall, 2005), and in creating implicit theories

of leaders and leadership (Schyns, Kiefer, Kerschreiter, & Tymon, 2011). Leadership courses can also help learners be aware of their strengths and weaknesses; such courses help individuals form and develop leader self-awareness (Taylor, 2010). Moreover, some researchers have emphasized the importance of leadership courses in college to facilitate future leadership performance (Ayman, Adams, Fisher, & Hartman, 2003; Riggio, Ciulla, & Sorenson, 2003).

Leading activities. A variety of activities on or beyond campus (e.g., student government, volunteer associations, student-run businesses, etc.) provide opportunities for young adults to exhibit leadership skills. Students obtain direct leadership experiences from leading clubs, and indirect leadership experiences by observing and participating in various student organizations (Sternberg, 2011; Murphy, 2011). In particular, leading a club or organization serves as practice for subsequent formal leadership positions in the workplace (Sternberg, 2011). Furthermore, leader development programs in higher education settings and college campuses have seen an accelerated proliferation (Ayman et al., 2003; Komives, 2011; Riggio et al., 2003). Successful leader development programs in these settings are defined by 16 qualities that broadly fall into 3 categories, those that: strive to foster a learning community, have experiential learning experiences, and focus on research-based program development (Eich, 2008). Participation in activities or programs, in addition to taking on formal or informal leadership roles, helps increase leadership readiness and strengthen and shape leader identity (Komives, Dugan, Owen, Wagner, & Slack, 2011).

Internship and first job. During this stage, individuals start to gain workplace and on-the-job experience. Internship experiences provide young adults with the necessary platforms to apply and practice leadership knowledge obtained in high school and college. Challenges during an internship or first-job experience help build leadership-

related capabilities, such as acquiring professional habits, multitasking, and forming and maintaining interpersonal relations with superiors and colleagues (Gray & Bishop, 2009; Peel, Wallace, Buckner, Wrenn, & Evans, 1998). Moreover, Bass (1990) proposed that for a new employee (e.g., a management trainee), his or her first supervisor can have a great impact on his or her subsequent leader development, because the initial supervisor affirms or denies one's implicit leadership theory and acts as a good (or bad) role model, thus influencing his or her leader identity.

Romantic relationships. As a special dyadic relationship, romantic relationships share many features with other types of interpersonal relations such as friendships, colleague relationships, and even the leader-follower relationship. According to the relation-based approach to leadership, leadership is inherently a relational concept (Pearce, Conger, & Locke, 2007), that requires a minimum of two people (Carter, DeChurch, Braun, & Contractor, 2015). That is, relational leadership also includes a dyadic relationship level. Love and work during adulthood can be functionally akin to attachment in early childhood (Hazan & Shaver, 1990). Experiences in maintaining quality romantic relationships may help develop relationship skills critical to the maintenance of good leader-follower relations. Moreover, Montgomery (2005) found that greater intimacy in a romantic relationship was related to more passion, commitment-related beliefs, and psychosocial identity -- all factors that could be associated with the relational nature of leadership.

V. Purpose-driven stage *(adulthood, 30-60 years of age)*

Adulthood is a pivotal time period in the lifespan journey. At this stage, individuals work to discover what they are running toward (and from) and why (Santrock, 2016). They need to balance their past and future, stability and change, growth and decline, work and family. Often as parents themselves, they undertake the

responsibility to connect younger and older generations (Lachman, Teshale, & Agrigoroaei, 2015). Even though they may reach their peak in terms of career position and earnings, they may also be saddled with multiple financial stressors (Cahill, Giandrea, & Quinn, 2016). Having a sense of meaning and purpose enhances the motivation to take care of oneself, accomplish goals, and is linked to positive developmental outcomes (Santrock, 2016). Although many organizations invest heavily in leadership development programs for high potential employees within this age range, in today's workplaces, with uncertain career progressions, many individuals are left with increased responsibility to manage their own development (Barley, Bechky, & Milliken, 2017).

Leader development programs. Several meta-analytical studies have examined the effectiveness of leadership development programs (e.g., formal training, coaching, task assignments, action learning) at different periods of time (Burke & Day, 1986; Collins & Holton III, 2004; Day, Harrison, & Halpin, 2009; Lacerenza, Reyes, Marlow, Joseph, & Salas, 2017). One of the latest meta-analyses is based on 335 independent studies and has suggested that organizational leader development initiatives are effective for improving leaders' knowledge, skills, and capabilities (Lacerenza et al., 2017). The effect size varied according to training design, delivery, and boundary conditions, suggesting the aims of leader development programs can be achieved by upgrading the trainee's knowledge system, enhancing trainee's digesting reactions, and inducing trainee's transferable behaviors. As mentioned earlier, because individuals at this stage care about a sense of meaning and purpose, it is critical for participants to find leadership development programs useful and helpful, otherwise they may not be motivated to implement the takeaways after the completion of such programs (Lacerenza et al., 2017; Sitzmann, Brown, Casper, Ely, & Zimmerman, 2008).

Developmental challenges at work. Scholars have long considered developmental challenges at work as a critical trigger for developing leadership skills (McCall, Lombardo, & Morrison, 1988; McCauley, 2001; McCauley, Ruderman, Ohlott, & Morrow, 1994; Robinson & Wick, 1992). In the workplace, individuals are usually confronted with challenges characterized by unfamiliarity, complexity, uncertainty, and high stakes (Ohlott, Chrobot-Mason, & Dalton, 2004), such as being promoted, leading a diverse team, negotiating with a client, managing a new product launch, and being in charge of a risky financial acquisition. These assignments demand creativity and the ability to identify underlying causes or consequences of tricky problems and thus facilitate the development of strategic, cognitive, and behavioral leadership skills (Day, Harrison, & Halpin, 2009; DeRue & Wellman, 2009; McCall, 2004).

Marriage and parenthood. Work-family enrichment theory proposes that positive family experiences can facilitate work performance, including leadership performance, and vice versa (Barnett & Hyde, 2001; Greenhaus & Powell, 2006; Sieber, 1974). A meta-analytic review has suggested that there are strong positive relationships between job performance and family performance, job satisfaction, and family satisfaction, job engagement, and family engagement, and job affective commitment and family affective commitment (McNall, Nicklin, & Masuda, 2010). Marriage and parenthood are crucial aspects of the family experience. Managing a marriage could be a form of challenge, because it requires a variety of emotional and social skills, self-regulation, sense of responsibility, and conflict resolution strategies (Cordova, Gee, & Warren, 2005; Fowers, 1998), which are also required for leadership (Knights & O'Leary, 2006; Riggio & Reichard, 2008; Saeed, Almas, Anis-ul-Haq, & Niazi, 2014). In addition, it has been highlighted that parenthood and leadership share similarities in terms of showing consideration and guidance (Keller, 1999; Oglensky, 1995; Popper &

Mayseless, 2003), and the parent-child relationship is akin to the leader-follower relationship (Keller, 2003).

In the context of attachment theory, some suggest that being a good parent helps one be a good leader (Popper & Mayseless, 2003) and vice versa (Ferguson, Hagaman, Grice, & Peng, 2006). Additionally, the literature on personality development lends support to the notion that marriage and parenthood improve one's leadership. Many studies have identified how major life events such as marriage and the birth of a child could trigger a change of such personality traits as conscientiousness, agreeableness, and neuroticism (Antonucci & Mikus, 1988; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007; Sirignano & Lachman, 1985; Specht, Egloff, & Schmukle, 2011) and these personality traits are associated with leader emergence and effectiveness (Zaccaro et al., 2018).

Purpose-seeking activities. In recent decades, practitioners and researchers in organizations have garnered attention toward purpose-seeking activities. Many leaders in adulthood struggle to seek the value of success and quantify measures of personal success (George, 2012; Langer, 2010), such that they start to embrace mindfulness, meditation, or even prayer (Reitz & Chaskalson, 2016). These activities facilitate a connection between leadership work and personal intrinsic values through the perception of personal emotion, feeling, and the person-nature relationship (Sauer & Kohls, 2011). Research has suggested that mindfulness, including present-moment attention, self-compassion, and self-awareness, has a significant impact on leadership effectiveness (Wasylkiw, Holton, Azar, & Cook, 2015) and leadership behavior styles (Reb, Sim, Chintakananda, & Bhave, 2015). In addition, meditation may help develop mindful leadership (Frizzell, Hoon, & Banner, 2016; Langer, 2010).

VI. Legacy-making stage *(late adulthood, past 60 years of age)*

Late adulthood is the time for individuals to make their own legacy. At this stage, individuals increasingly think about time-left-to-live instead of time-since-birth (Kotter-Grühn & Smith, 2011; Settersten, 2009). There may be declines in physical health and cognitive resources (Santrock, 2016). With respect to leader development, individuals at this stage may be tasked to help deliver leader development programs within their organizations, or after retirement coach and mentor others to develop their leadership skills.

Leadership succession. Research has shown that leadership succession is an important strategic process in organizations to select and develop the next generation of leaders (Poulin, Hackman, & Barbarasa-Mihai, 2007). During pre-retirement, senior leaders often start to make their own leadership legacy and consciously review their leadership achievements. Older adults have indicated the desire to leave a legacy in three forms: biological, material, and value-based (Hunter & Rowles, 2005). The legacy motive can propel ethical, sustainable, inter-generational decision making for organizations (Fox, Tost, & Wade-Benzoni, 2010). Moreover, senior leaders play a role in seeking out their successors either through the internal talent pool or through recruitment from external organizations (Leibman, Bruer, & Maki, 1996). Once they have a succession plan, senior leaders may start to focus on recruiting and developing the next set of leaders through specific developmental and knowledge sharing activities. Indeed, older leaders' purposeful development of the next generation of leaders is critical for good leadership succession (Zacher, Rosing, Henning, & Frese, 2011).

Leadership coaching. Studies at senior centers showcase how leadership in retirement takes on a more relational, sensitive approach than in the working world, and shows that more experienced retirees often serve as mentors for others (Cusack & Thompson, 1992). Retired leaders may serve on boards of directors or advisory boards of

for-profit and/or nonprofit and community organizations, providing valuable advice to executives and senior leaders. Top-level leaders, such as CEOs and political leaders may author books or memoirs, imparting their gleaned leadership knowledge and expertise to the public and the next generation (e.g., Welch et al., 2005).

Retirement. For individuals in late adulthood, retirement is the most critical focus. After 60 years old, work activities among senior people begin to decrease and many people retire from their positions at work (Coile, 2018). Research has shown that retirement intentions are dependent on the attractiveness of the post-retirement outcomes, work-role attachment, and perceived pressures in the workplace (Soleimanof, Morris, & Syed, 2015). Retirees start to anticipate their post-retirement lives, and make post-retirement decisions as to the nature of their work such as continuing in their careers, taking up a new and different job, doing volunteer work, doing civic engagement work, and so on (Santrock, 2016; Shea & Haasen, 2006). Some retirees continue to contribute to society through volunteer and community service leadership (Cusack & Thompson, 2013).

Give the above, the developmental experiences at each stage have their potential effects on leader development. To better understand the corresponding relations, we provide a table (see Table 2) that organizes different types of developmental experiences at each developmental stage and the corresponding leader development indicators.

----Insert Table 2 here ----

Mediating Role of Two Systems in Developing Leadership Expertise

The various developmental experiences across the lifespan, outlined in the preceding section, are the elements that impact an individual's capacity to lead. The middle tier of the model (see Figure 1) illustrates the two mediators between experiences

and leader development: the experience processing system and the leader self-view system. We use "system" as a way to comprehensively and dynamically integrate the understandings from experiential learning, deliberate practice, and contextualizing application on leader development. We have also incorporated the three components of self-view into a cyclical system. In addition, these two systems interact dynamically with each other.

Experience processing system

The experience processing system needs to be activated, in order for leader development to occur via the above-mentioned critical experiences. As McCall and his colleagues (1988) noted, the most potent forces for development are the lessons gained from experiences, rather than the experiences per se. Moreover, considering the difficulties and insufficiency of on-the-job experiences, researchers have argued for a need for deliberate practice to develop expertise (Day, 2010). Based on the contextual nature of leader development, there is a need to apply the expertise acquired through practice to leadership contexts (Day, 2000; Day & Liu, 2018). The experience processing system that we propose begins with experiential learning through deliberate practice, requires contextualizing the application, and dynamically loops back to experiential learning.

Experiential learning. According to experiential learning theory (Boud & Walker, 1991; Kolb, 2014), learning occurs through the continuous processing of prior experiences. Specifically, individuals should reflect on their performance after an experience, generalize from those experiences to build new models, and then implement the takeaways through experimentation. Subsequent researchers have touted the inclusion of interpersonal interaction in this process (DeRue, Nahrgang, Hollenbeck, Workman, 2012), in particular, the importance of feedback from others (Ellis & Davidi, 2005).

Based on the insights above, we advocate that for effective experiential learning, individuals need to have concrete developmental experiences, review those experiences, reflect on their performance, and implement the lessons learned. In addition, they should seek out feedback, because the extent of feedback availability can offset the diminishing returns related to a developmental challenge (DeRue & Wellman, 2009). For feedback to be useful it is also important to understand how it interacts with one's leader self-view system, modifying or strengthening various components to result in appropriate leader behaviors (Hannah, Woolfork, & Lord, 2009).

Deliberate practice. The process of deliberate practice, or engaging in highly structured effortful activities to improve performance in a particular domain or skill has been shown to contribute to expertise in the field (Ericsson, Krampe, & Tesch-Römer, 1993). Deliberate practice is known to compensate for age-related cognitive and physical declines (Day, 2010). It plays an important role in one's leadership journey from a novice to an expert (Day, Harrison, & Halpin, 2009), and the notion of practicing leadership should be given greater attention in the leader development literature (Day, 2010). Coupled with feedback, deliberate practice enables deeper learning and authentic improvement and ultimately leads to mastery (Coughlan, Williams, McRobert, & Ford, 2014; Pulakos, Hanson, Arad, & Moye, 2015). We propose that deliberate practice can effectively enhance experiential learning because it can enable one to perform tasks with a clear intention.

Contextualizing application. Context is a well-established essential aspect of leadership theory and research (Ayman & Lauritsen, 2018). Leadership and its development are inherently linked to specific contexts (Day & Liu, 2018). Therefore, leadership can be practiced and improved upon through the application of skills in appropriate contexts. Not only does leadership context or situation significantly impact

the expression of leadership (Zaccaro et al., 2018), but there is some evidence that there is only moderate similarity in leadership behaviors across contexts (Michel & LeBreton, 2011). Thus, "situational engineering" can help people find congruence between their skills and situational characteristics (Ayman & Lauritsen, 2018). In our model, we believe that the application of experience through context works between deliberate practice and new experiential learning in the experience processing system.

As a backdrop for processing experience, there is evidence that two additional mechanisms determine how experience is effectively utilized in leader development. Based on Dweck's work (1986), individuals with a growth mindset versus a fixed mindset approach leadership development differently (Heslin & Keating, 2017). Research on learning goal orientation that is inherent in the growth mindset shows that a goal of skill development as compared to a goal of performing well is more beneficial to learning from experience (DeShon & Gillespie, 2005; Johnson et al., 2018). Additionally, one's leader developmental efficacy (Reichard, Walker, Putter, Middleton, & Johnson, 2017) serves as a measure of individual differences in the degree to which one feels efficacious in developing leadership knowledge and skills, and plays an important role in determining how well leader development experiences translate into increasing skill acquisition or enhancing leader self-concept. In sum, the experiential processing system incorporates continuous learning from experience, deliberately practicing and strengthening skills learned, and applying them to real leadership contexts, all facilitated through feedback from others. And, this system is bolstered by individual characteristics around learning goal orientation and leader developmental efficacy.

Leader self-view system

Self-view refers to "individual's perceptions of his or her standing on the attributes made salient by a given context" (Lord, Brown, & Freiberg, 1999, p. 177). It

usually indicates perceptions one holds about his or her ingenuity, ability, and skills, according to the distance between the current state and possible self (Gardner, Avolio, Luthans, May, & Walumbwa, 2005; Lord & Brown, 2001). Leader self-views define one's self-concept regarding leadership and include leader self-awareness, leader self-efficacy, and leader self-identity (Day & Dragoni, 2015). According to Hannah et al. (2009), who refer to these leader self-views as components of a leader self-structure, they propose that this system assists in the self-regulation of leader behavior affecting motivation, response to challenge, and performance (Lord, Hannah, & Jennings, 2011; Murphy, 2002). These components are believed to be more proximal and malleable for leader development (Day & Dragoni, 2015; Day & Liu, 2018; Day & Thornton, 2018), and they form and develop through various experiences in the lifelong journey.

Leader self-awareness. Leader self-awareness is the knowledge about one's personal strengths, weaknesses, and interpersonal influence as a leader (Hall, 2004; Day, Harrison & Halpin, 2009). Longstanding research in social psychology considers the circumstances under which individuals are more or less self aware (Brown, 1998). Self awareness as related to leadership development focuses on its role in developing effective leadership mostly through the use of varying forms of feedback surrounding leader performance in terms of behaviors and outcomes (Gardner et al., 2005). Because leaders with high performance have been found to have higher self-awareness levels, researchers have proposed self-awareness as a precursor to leadership, and it should be considered an important quality during leadership recruitment and development programs (Atwater, & Yammarino, 1992; Church, 1997; Moshavi, Brown, & Dodd, 2003). Individuals can enhance leader self-awareness by comparing self-ratings of leadership competencies or skills to ratings from supervisors', peers', or team members' ratings of their leadership (Moshavi, Brown, & Dodd, 2003). Therefore, the level of leader self-awareness relies

heavily on how well the ratings of self and others concur, and depends on feedback to be enhanced (Day & Dragoni, 2015). Leaders whose self-reports concur with those of their followers tend to be more effective (Tesluk, 2001). Because leaders with high performance have been found to have higher self-awareness levels, researchers have proposed self-awareness as a precursor to leadership, and it should be considered an important quality during leadership recruitment and development programs (Atwater, & Yammarino, 1992; Church, 1997; Moshavi, Brown, & Dodd, 2003).

Leader self-efficacy. Self-efficacy is defined by Bandura (1982) as a judgment of "how well one can execute courses of action required to deal with prospective situations" (p. 122). Leader self-efficacy is one's belief about his or her abilities to take leadership roles or perform leadership behaviors (Day, Harrison & Halpin, 2009; Murphy, 2001). It is important to the leadership process because it is highly related to one's motivation to be a leader (Murphy, 2002) and is related to experience in the leadership role (Murphy & Ensher, 1997). Additionally, leader self-efficacy helps individuals enact leader roles under challenging or stressful circumstances that are caused by developmental experiences in work or life (Murphy, 2001, 2002). Therefore, leader self-efficacy is believed to be a key variable in determining the effectiveness of leader functioning in a dynamic environment (McCormick, 2001), and directly affects leadership performance (Prussia, Anderson, & Manz, 1998).

Leader self-identity. An individual's identity is multifaceted. It is comprised of one's attributes, values, knowledge, experiences, and self-perceptions (Baltes & Carstensen, 1991; Miscenko & Day, 2016). Leader self-identity, as a subset of an individual's self-identity, refers to the extent to which an individual identifies with the role of leader (Day, Harrison & Halpin, 2009; Hannah et al., 2009). Given that individual identity develops across the lifespan (Erikson, 1959), the development of leader self-

identity is a continuous lifelong process. Leader development occurs during the process of enhancing the accordance between leader role requirements and personal leader identity or what is known as a strengthening of leader identity (Hall, 2004). In addition, the orientation or content of one's leader identity is also important. That is, how leader identity orients toward the individual, dyadic or collective level of interaction (Lord, Gatti & Chiu, 2016). As leader self-identity evolves, one is encouraged to apply the new leadership skills obtained, which further fuels leadership skill acquisition and identity development (Lord & Hall, 2005). Research has shown that leader identity does not develop in a linear fashion, but within an uneven trajectory as one experience success or setbacks in taking on the leader role (Day & Sin, 2011).

Considering the features of leader self-awareness, self-efficacy, and leader self-identity, we propose the leader self-view system, to emphasize the dynamic interactions among these three components (See Figure 1). These three variables, impacted by developmental experiences, influence each other cyclically. That is, after undergoing a developmental experience, an individual can be cognizant of the skills acquired (self-awareness), which through action, can enhance belief in leadership capabilities (self-efficacy) and ultimately, increase the extent to which one thinks of himself/herself as a leader (leader identity). Similar to the experience processing system, this loop works when the above-mentioned developmental experiences occur across the lifespan.

It must be noted that culture influences the self-construal, or the extent to which the self is related to a collective-orientation or independent-orientation (Hofmann & Doan, 2018). Individualism and collectivism can be seen as opposite ends of a continuum (Hofstede, 1980), with an individual's motives directing behavior in an individualistic culture (Choi, Nisbett, & Norenzayan, 1999), and the societal context shaping behavior in a collectivistic culture. The cultural construal orientation is important to keep in mind for

how one views self-efficacy (Oettingen, 1995), and leader effectiveness (van Knippenberg, 2000). Such conceptualizations can influence the self-view system which is an aspect that should be looked into in future research.

In addition, the two aforementioned systems can be reinforced mutually. During the process of experiential learning and practicing through developmental experiences, one's leader identity, awareness, and efficacy start to build and develop, resulting in positive developmental spirals or trajectories (Day, Harrison & Halpin, 2009). In turn, the development of the self-view system also influences the speed and effectiveness of the experience processing system based on these developmental experiences (Luthans & Avolio, 2003). The idea of the top-down and bottom-up mechanisms in cognitive and social psychology (David, Green, Martin, & Suls, 1997; Wolfe, Butcher, Lee, & Hyle, 2003) provides a theoretical base for interactions between these two mediators (e.g., systems). A top-down mechanism is formed through learning (Tani, 2003). It further serves as a structure to form a bottom-up mechanism for processing external information efficiently. A top-down mechanism such as a leader self-view system represents the psychological processes determined by existing higher-level cognitive structures. Additionally, a bottom-up mechanism such as leadership experience processing system refers to psychological processes related to stimulus coming directly from the external environment. As such, interactions between the leader self-view system and experience processing system are meaningful to understand how humans interpret and interact with the external environment and how leader development occurs in a dynamic experiences-grounded way.

The working mechanisms of the lifespan experiences-grounded model

As depicted in the lifespan experiential model (Figure 1), heritable traits such as physical features, intelligence, and personality form the foundation for leader development, while other life experiences mold and enhance one's leader development across the various stages of life. To better illustrate our model, we consider a person, Jordan, as an example. In childhood, Jordan is exposed to different learning experiences that arise spontaneously or from other more directed experiences at home and at school that help Jordan form initial impressions of what leaders do, and Jordan's own capability in leading others. As Jordan grows older, Jordan has the capability to consciously and proactively choose to be involved in these developmental experiences. In other words, Jordan can deliberately develop leadership skills via experiences in later childhood and adolescence.

Two systems, experience processing system and leader self-view system, play a critical role between experiences and leader development. As discussed previously, experiences per se do not facilitate leader development automatically (McCall et al.,1988). Jordan's household chores during childhood such as making a bed, mowing lawns, or planning a family party, provide opportunities to gain leadership experience, but do not directly help Jordan's leader development because Jordan's parents assign the chores. These chores can only contribute to Jordan's leader development under two conditions:

1) Jordan's experience processing system is activated. There are three steps in this process. Step 1: Parents enlighten or encourage Jordan to think and learn something from doing the chores. What Jordan learned might be how to be a person with responsibility through self-caring, or how to achieve a sense of accomplishment through solving problems, or how to be a good organizer through planning family parties (i.e.,

experiential learning). Step 2: Jordan's parents deliberately require or encourage doing these chores multiple times so that Jordan has the chance to deliberately practice and learn with the help of parents' feedback (i.e., deliberate practice). Step 3: Jordan then applies or transfers the learning and practice into real group contexts, such as classroom or extra-curricular activities (i.e., contextualizing application). These three steps form a dynamic loop that repeats itself.

2) Jordan's leader self-view system is activated. There are three steps to this process as well. Step 1: Parents enlighten or encourage Jordan to reflect on possessed strengths and weaknesses by giving feedback about Jordan's performance in completing household chores. For example, from feedback, Jordan recognizes that s/he possesses skills in planning and making decisions (i.e., leader self-awareness). Step 2: Jordan develops the confidence to take on leader roles. With self-awareness of characteristics and strengths, Jordan develops a sense of efficacy in performing leadership behaviors in other settings. For example, Jordan would have confidence and motivation to run for election as a classroom officer (i.e., leader self-efficacy). Step 3: Jordan identifies as a leader. As leadership experiences accumulate, Jordan meets more leader role requirements and builds a close connection with the role of leader (i.e., leader self-identity). These three steps then make a dynamic, and iterative loop.

For Jordan, the experience-processing system and leader self-view system can be reinforced mutually. The improvement of Jordan's sense of responsibility, a sense of accomplishment, or organizing capability through the experience processing mechanism will facilitate Jordan's formation and development of leader self-awareness, self-efficacy, and leader self-identity, and vice versa. The activation of two systems and the authentic improvement of experiences-grounded capabilities or skills, as well as the self-views level, will logically urge leader development to occur. Eventually, Jordan would be more

likely to be perceived as a leader by others, and Jordan will emerge as a leader more often and perhaps across contexts.

Notice that this is one snapshot of Jordan's early childhood, therefore there is a need for guidance and encouragement from parents and other significant individuals. Actually, each person at each developmental stage is facing various developmental experiences, the individuals who possess mindset maturity can deliberately develop their leadership by themselves. The model in this study not only provides a guiding framework for parents and teachers to deliberately cultivate future leaders with the use of developmental experiences, but provides a guiding framework for adolescents or adults to deliberately develop their own leadership through experiences.

The multiple-contexts-embedded feature of the model

Leader development is an inherently multilevel and contexts-embedded process (Avolio, 2004; Day & Dragoni, 2015). Specifically, leader development can occur within the context of an individual, dyad, team, organization, industry, society, and even culture (Day & Thornton, 2018). From the lifespan perspective, the contexts for leader development vary across the developmental stages. Based on Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1986, 1992, 1994), we propose a dynamic-multilevel model that demonstrates the leadership contexts across the lifespan. As shown in Figure 2, the original family system works as the main context for one's leader development at the stages of preschool, childhood, and adolescence (Murphy & Johnson, 2011); the current family system works as the main context for one's leader development at the stages of emerging, middle, and late adulthood (Cordova et al., 2005; Keller, 1999); the original family context continues to impact the current family context (Sabatelli & Bartle-Haring, 2003). Beyond the family context, the education system starts to influence one's leader development from childhood to emerging adulthood; the

working organization system starts to work as an important context at emerging to late adulthood. Likewise, the education system impacts the working organization context. In addition, all of the contexts mentioned above are embedded in the social and cultural context (Manning, 2003; Murphy & Johnson, 2011).

----Insert Figure 2 here ----

Social context, such as an economic boom, can provide prosperous job positions or opportunities, and thus directly or indirectly influence one's leader development. Culture is a significant factor for leader development research, because cultural differences play a non-trivial role in leadership theories. For instance, global leadership research has shown that different cultural groups have different conceptions or implicit theories of what leadership should entail (Den Hartog et al., 1999; Ling, Chia, & Fang, 2000). Moreover, a multi-language meta-analysis across 14 countries that collated research on paternalistic leadership, a prominent leadership style in non-WEIRD (Western, Educated, Industrialized, Rich, and Democratic) cultures, summarized findings relating to the importance of benevolence and authority aspects of paternalistic leadership (Hiller, Sin, Ponnapalli, & Ozgen, 2019). In sum, there are "concentric circles" outside the individual that represent the multi-level context -- dyad or team, organization, sector or society, and regional or national culture -- that can all impact leader development.

Future Research Directions

Our theoretical model of leader development experiences across the lifespan has important implications for research examining the early roots of leadership, as well as for understanding how specific age-related and age-appropriate experiences impact leader development. Our intent is to merge theory and research on human development with scholarship on leader development and introduce a lifespan model that will stimulate

research on the early roots of leadership, as well as incorporating age into the study of leader development.

Perhaps the most obvious direction for future research on leader development is to increase attention to the early life precursors of adult leadership. Although there has been a great deal of theorizing about early predictors of leadership (Murphy, 2011), and some preliminary research exploring how child and adolescent variables correlate with leadership as adults (e.g., Guerin et al., 2011; Gottfried et al., 2011; Oliver et al., 2011) much more work is needed. Particularly important is the need for true, longitudinal designs that will allow examination of how specific formative experiences impact the development of leadership over time (Day, 2011; Reitan & Stenberg, 2019). Longitudinal research, consisting of the measurement of similar leader development experiences across the years, is clearly needed to understand which experiences are impactful in developing leadership, and at what periods. Such longitudinal research allows us to explore individual and group trajectories of leadership development (Day & Sin, 2011; Rosch, Ogolsky, & Stephens, 2017).

Another focus for research moving forward is to explore the process of leader development. As suggested in this paper, leader development is a dynamic process whereby experiences interact with leader self-views and the context -- leading to the acquisition and honing of leadership skills and potential. Greater research attention needs to be given to the role that leader identity plays in the leader development process (Day, 2011), and how leader identity changes as the individual ages and moves through different developmental stages. The notion of “critical periods” that is so important in child development (e.g., Bernstein, 1987) suggests that there may be certain periods for the optimal development of particular leader competencies, and the nature of these critical times merits future investigation.

According to dynamic developmental theory, people's thinking, feeling, and acting occur dynamically across the lifespan (Mascolo & Fischer, 2010). Similarly, leader development is a dynamic process (Day & Thornton, 2018; Kegan & Lahey, 2016). The lifespan trajectory of leader development has not been addressed by current researchers (Day, 2011). Some scholars have tried to hypothetically propose leader growth and change over time, based on the complexity of cognitive development of human beings. For example, career development throughout the lifespan typically refers to a continuous lifelong process of developmental experiences that helps individuals relate to work (Greenhaus, Callanan, & Godshalk, 2000). This process includes seeking information about one's self as well as occupational, educational, work role, and life options. By utilizing "chaos theory," which incorporates complexity and unpredictability (Bright & Pryor, 2005), unplanned and chance events that contribute often to the non-linearity that pervades one's career are better understood. Moreover, these non-linear and recursive paths show the way in which setbacks and developmental plateaus occur in what is typically thought of as an upward developmental trajectory. Thus, we acknowledge that given our proposed model, we also have to consider the individualized nature of leader development through this experiential approach across the lifespan, because people commence their leadership at varied time points, learn from the experiences differently, and hence have different developmental trajectories across the lifespan. This individualized aspect of leader development underscores the importance of finding mechanisms for facilitating self-development (Barley, Bechky, & Milliken, 2017).

One important research issue concerns the criteria by which we determine if leader development has occurred. Whether researchers focus on leader emergence as assessed by social metrics, improvements in leadership task accomplishment through evaluation of behavioral standards, as evidenced by job promotions, individuals in

leadership roles show evidence of development when developmental outcomes help match role requirements (Day & Dragoni, 2015). Many comprehensive studies of leader effectiveness look at proximal and distal outcomes as well as processes mechanisms for leadership (Judge & Long, 2012). As noted earlier in this paper, it is not only distal outcomes such as individual or collective performance, but evidence of the experience processing and leader self-view systems at work that indicate that leader development is occurring.

Studying leadership development across different "leadership tasks," at different life stages, however, leaves a wide array of leadership outcomes that indicate effectiveness and can be used as indicators of developmental outcomes (Judge et al., 2002). Moreover, understanding leadership outcomes requires a corollary understanding of different contexts for leadership. Whether it is differing levels of responsibility, or specific tasks for leaders, all will affect the way that we identify those who succeed as leaders. Particular occupational settings, for example, require higher levels of teamwork, and others require granting more widespread employee empowerment. Medical settings may require a type of leadership that involves the self-sacrifice of servant leadership, whereas military leadership requires a different form. These various settings also have implications for research as they suggest very different criteria to understand effective behaviors and objective outcomes, and therefore may require a greater understanding of context and situational features (Mumford,1986, Zaccaro et al., 2018).

As research on leadership across the lifespan moves forward there should be a multitude of different approaches and methodologies. Much of the current evidence of the impact of early experiences on later leadership emergence has relied on studies focused on adulthood with retrospective narratives that risk self-serving biases (Dobbins & Russell, 1986), and problems in correctly establishing causal attributions (Weber,

Camerer, Rottenstreich, & Knez, 2001). An alternative methodology could be prospective, long-term longitudinal designs, which could help better uncover the influences of early-life factors (e.g., Reitan & Stenberg, 2019). Some advanced statistical analysis methods such as growth modeling and latent class modeling can be utilized in these longitudinal studies (Bliese & Lang, 2016; Bliese & Ployhart, 2002). However, we need to bear in mind that longitudinal research is not a panacea and will not be helpful if the modeled independent variable is not a trait or not exogenous for a particular reason, i.e., we need to be cautious of endogeneity in longitudinal designs so that the findings are not prey to the "after this therefore because of this bias" (Kerlinger, 1986). Another alternative methodology could be through experimental studies that operate independent variables by randomized grouping with the exclusion of interfering factors, so as to strictly reveal the causal effects of early factors on leadership. Agent-based simulations are potent ways to study complex causal effects on leadership (Dionne & Dionne, 2008; Edelson, Polania, Ruff, Fehr, & Hare, 2018; McHugh et al., 2016; Serban et al., 2015). In addition, field experimentation in organizational research provides an important avenue to establishing high confident causal effects in life-span leadership research (Chatterji, Findley, Jensen, Meier, & Nielson, 2016; Eden, 2017; Harrison & List, 2004; Shadish & Cook, 2009).

Although much of our emphasis is on quantitative, empirical studies, qualitative research will also help to better understand how leadership develops at different stages of life. Historiometric methods (e.g., Ligon, Hunter, & Mumford, 2008; Parry, Mumford, Bower, & Watts, 2014) seem particularly appropriate for the study of lifespan leader development. However, the current qualitative study methodologies are not often amenable to scientific reproduction and replication (Antonakis et al., 2019). Therefore, we need to bear in mind that qualitative historiometric studies can provide causal

evidence, but only if they are conducted via a scientific procedure and strictly follow appropriate coding and testing principles (Crayne & Hunter, 2018; Simonton, 2003). It is also important to remember that the phenomenon of leadership has been studied across a wide range of disciplines. These include sociology, anthropology, and political science, in addition to investigations of leadership in certain professions including business, medicine, sports, etc. The advantage of interdisciplinary research is that it utilizes different theories, research perspectives, and methodological techniques from two or more disciplines or bodies of specialized knowledge, offering a broader picture of the phenomenon.

At the more applied end of the research spectrum, systematic study of formal leader development programs, including programs targeted at youth (both curricular and co-curricular), as well as programs to develop workplace leaders/managers, should become more commonplace. A decade-old meta-analysis of various leader development interventions suggested that, on the whole, leader development interventions have a positive impact, although there were methodological limitations to many of these studies (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). It is time to investigate more deeply, looking at the types of leader development programs, the training methods used, the age at which development occurs, with particular attention to leader development outcomes (e.g., changes in leader identity, acquisition of leader competencies, etc.), as well as the return on investment of training time and resources (Avolio, Avey, & Quisenberry, 2010).

Finally, increased research attention should also be focused on leader development in the later years of life. A great deal of attention is focused on identifying young adults who have “high potential” for future leader positions (Conger & Church, 2018). We also need to better understand how older adults -- both those in identifiable

leader positions and those who are informal leaders at work or in the community -- leverage the skills and abilities they have learned to leave a lasting impact on both the organizations and communities of which they are members, and also the impact they have on younger members of those collectives. In short, what sort of "legacy" do individuals leave on the collective as they exit?

Within each of these research areas, it is also important to consider the boundary conditions for the proposed model and incorporate other research literatures to expand the generalizability of the process to various cultural contexts, as well as across genders and social identity groups. Studies such as the GLOBE investigations (House, Hanges, Javidan, Dorfman, & Gupta, 2004) and studies comparing men and women, members of majority and minority groups, and others, are critical.

Implications for Practice

By looking broadly at leader development across the lifespan and by focusing on developmental experiences and processes at each stage of life, there are lessons for improving leadership development programs. In general, the implications for practice focus on what is gained from understanding leadership development throughout the lifespan by not only focusing on what is developed, but the mechanisms by which development occurs, and how one would go about assessing the outcomes of development. Moreover, a given window of opportunity for development requires an understanding of the predominant tasks of that developmental period, but also requires acknowledging that leadership experiences are cumulative and nonlinear.

Clearly, work organizations invest a tremendous amount of resources -- in the billions of dollars annually -- to develop leaders. Although organizations may assume that members come to them with some leadership capacity, primarily in the form of previous work or higher education leadership experiences, they do not usually consider

the multitude of leadership-related life experiences that each organizational member has acquired. Murphy (2018) argues that when it comes to leader development, organizations rarely take into account the prior leadership development experiences an individual brings to the workplace. Typically, organizations make good use of broad development information in the selection, placement, and development of employees for leadership roles, but understanding how to enhance the processing of future developmental experiences and the self-view processes are missing from development. Previous length in leadership roles, as well as the breadth of previous accomplishments within leadership roles, give some clues as to where development is needed. What is often not taken into account is a more comprehensive understanding of the maturity of one's leadership development process, the strength and content of one's leader identity, level of leadership self-efficacy, or other personal aspects such as cognitive complexity for understanding the leadership role -- all serve as a point of reference for further leader development.

Across all stages, this model highlights the need for improving leadership development activities regardless of whether the program focuses on youth, college, or organizational leadership. At the individual level, an increased understanding of the self-view mechanisms and experience processing requires a focus on deliberate, conscious, and positive leader development practice (Day, 2010), as well as utilizing a growth mindset for development (Heslin & Keating, 2017). Many corporate leadership development programs are focused on ways to tie leader and leadership development together for individuals through increased feedback and opportunities for practice (Day & Dragoni, 2015). At the team level, organizations have begun to capitalize on the importance of team development whether for intact teams, or cross-functional teams (Day, Gronn, & Salas, 2004), that work on organizational problems through action learning projects (Leonard & Lang, 2010), or that use team coaching and after event

reviews (AERs) to improve performance and gain skills (DeRue et al., 2012). Deliberately developmental organizations (DDO) (Kegan & Lahey, 2016) have developmental cultures (Day, 2007; Day & Thornton, 2018) that provide supporting practices and informal norms to continually develop leadership at the individual and team levels. This deeper understanding of leader development throughout one's career, in context, will afford more effective practices at all organizational levels.

A dynamic experience lifespan approach holds important implications for the growing number of youth leadership development programs taking place in middle schools, high schools, and college (Karagianni & Montgomery, 2017; Lee & Olszewski-Kubilius, 2014). By promoting a deeper understanding of the trajectories of development, and capitalizing on experience windows, we help identify ways to improve a wide array of development programs by providing a deeper understanding of the range of leadership approaches that work for different leadership tasks throughout the lifespan. The current leader talent shortage indicates we may be looking at the way in which we define leadership too narrowly (Wellin, 2018). A lifespan model that uncovers successful leadership at various stages in the lifespan has the potential to broaden our diversity and inclusion for leadership roles (Murphy, 2018). Pinpointing the multitude of ways in which individuals enact their leadership lets us look at leadership effectiveness through new lenses.

Conclusion

This paper has sought to expand the current understandings of leader development by highlighting the important ways individuals can gain, hone, and learn leadership skills -- with a focus on the process occurring across the lifespan. The model we propose has tapped into areas previously understudied in leadership research. It has broadened

lifespan development theory by incorporating developmental stages from early childhood through retirement years. The proposed model, building on work by Murphy and Johnson (2011) on early leader development, clarifies the dynamic nature of development and the underlying mediating systems that enhance experiential leader development across the entire lifespan.

In line with Bronfenbrenner's Ecological Systems Theory (1994), which highlights the role that environmental forces play in initially shaping one's identity and modifying it throughout life through constant interactions with environmental factors, this model has touched on the multiple contexts that influence one's leader development, many outside of the work organization context. Additionally, the roles and dynamic interaction of the leader's experience processing system and the leader's self-view system are discussed, which is an important contribution of this model.

We argue that individuals at each developmental stage have opportunities to work on their leader development. Acknowledging the long developmental trajectory that underlies effective leadership can only enhance our knowledge of more effective ways to develop leaders for the challenges of the future. Because the experiential model taps into daily life events and activities that people are involved in or exposed to, everyone has the potential to develop leader skills in everyday life. We hope that this model can be used as part of leadership pedagogy practices for parents, teachers, and practitioners.

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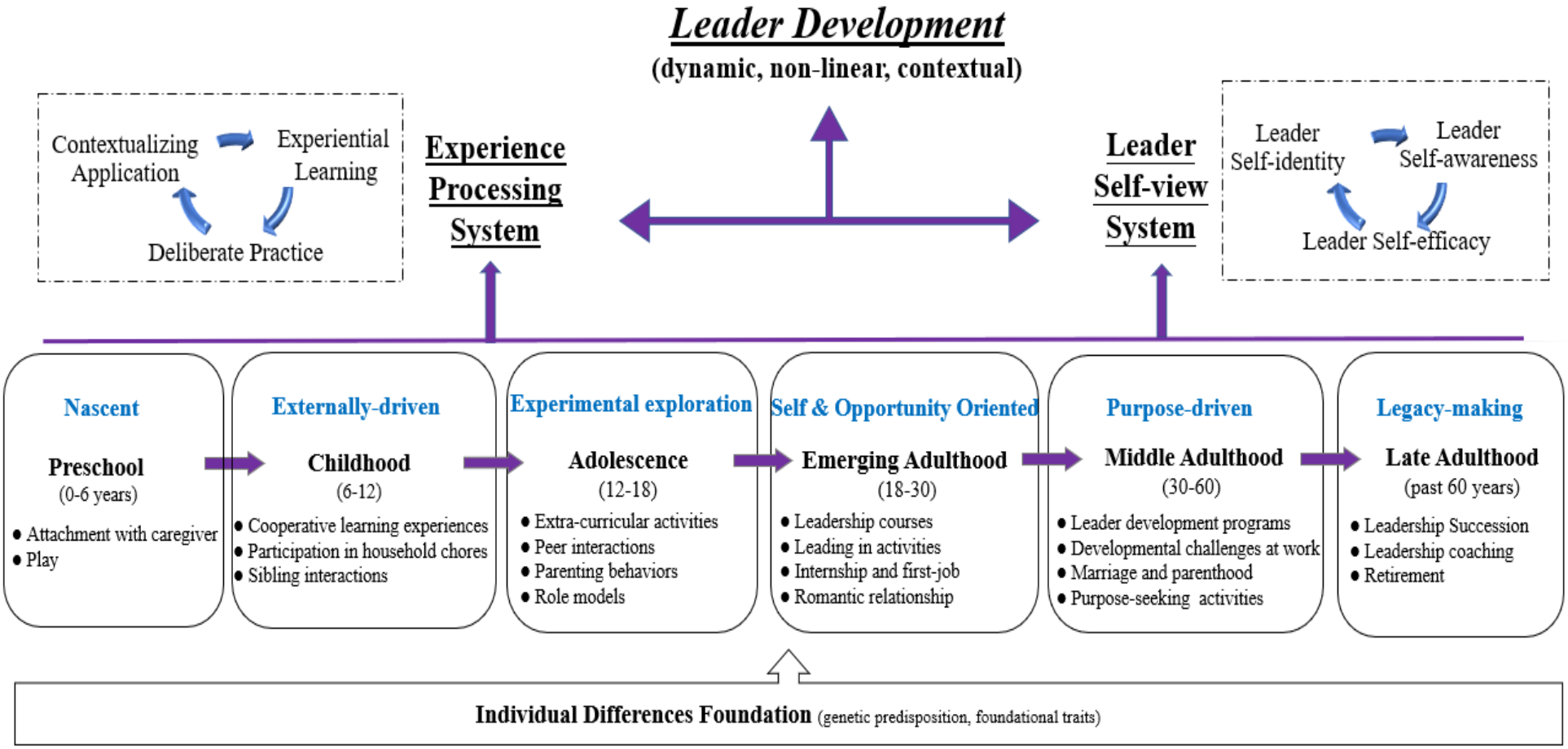

Figure 1: Leader Development through Experiential Windows across the lifespan

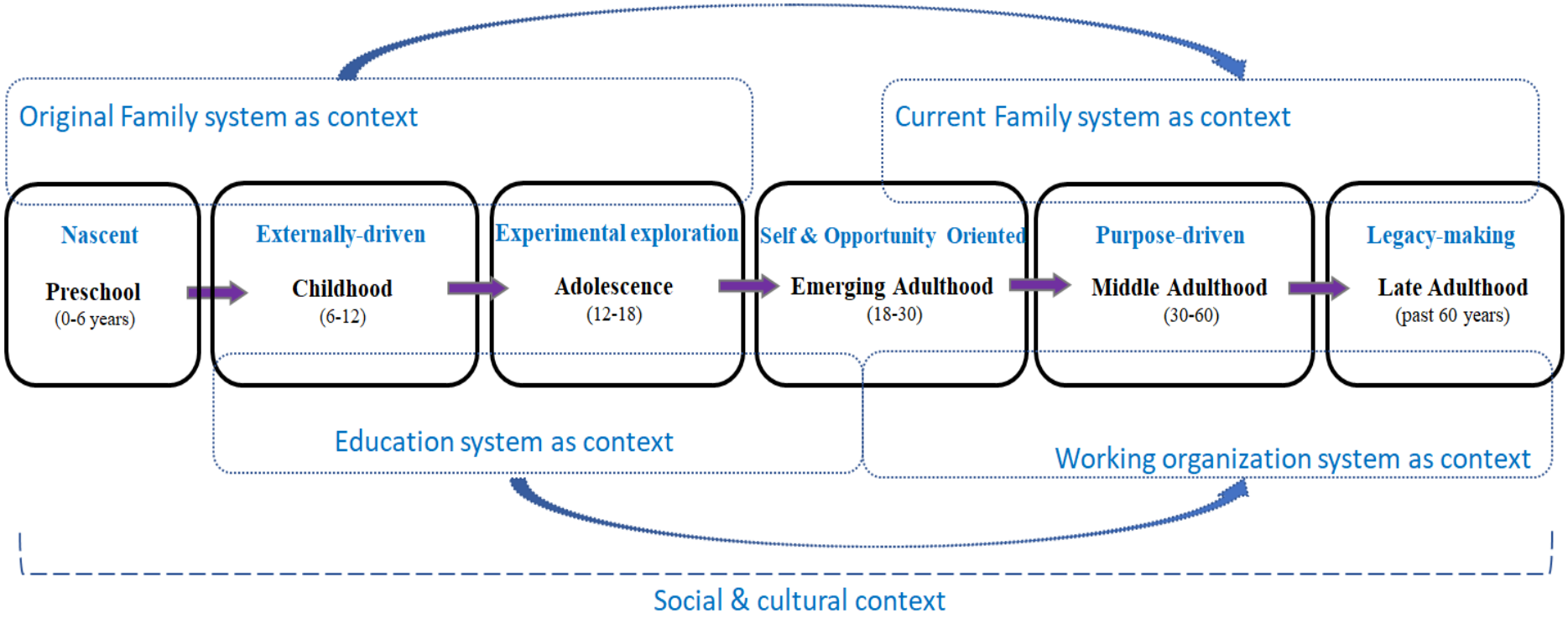

Figure 2: Leader development contexts vary across the Lifespan

Table 1: Selected key findings – State of leader development

Dimension of analysis	Focus	Key Findings	Example Publications
Leader development summary studies and outcomes	Leadership training for skills development	Meta-analysis showed that different types of management training were effective.	Burke & Day (1986).
	Leadership training for skills development	Meta-analysis of leadership development in the form of training	Lacerenza, Reyes, Marlow, Joseph, & Salas (2017)
		Development of leadership through different theories of leadership	Avolio, Reichard, Hannah, Walumbwa, & Chan (2009)
	Evidence of development of leader identity	A study of the developmental trajectory of leader development	Day & Sin (2011)
	Leader skill development	Longitudinal study of college student leadership.	Rosch, Ogolsky, & Stephens (2017)
	Additional evidence of when and how leadership is developed	Meta-analysis of leadership outcomes showing that studies since Burke and Day publication and separated the findings by research design and behaviors.	Collins & Holton III (2004)
	Longitudinal studies that include early childhood and adolescent factors of leader development	Evidence of precursors from childhood, and adolescents predicting leadership emergence and suggesting the experiences that affect leadership.	Guerin, et al., (2011) Gottfried, et al., (2011) Oliver, et al., (2011)
		Early childhood leadership attributes predicted later leaders.	Reitan & Stenberg (2019)
Selected theories of leadership development	A focus on process of development and various methods for different outcomes.	Developing self-efficacy in the domain of leadership, developing awareness of different modes of motivating others in correspondence with different theories of leadership, and developing specific leadership skills (e.g. giving feedback).	Popper & Lipshitz (1993)
	Development of transformational, transactional, and laissez faire leadership	Full range leadership development focuses on the precursors and outcomes for those effective in leadership in knowing when to utilize various leader behaviors.	Avolio (2004)
	Adult development focuses	Leadership development is cast as adult development and the focus is on moral development, leader identity development, cognitive development and improved skills and expertise.	Day, Harrison, & Halpin (2009)

Table 1. Cont.

Dimension of analysis	Focus	Key Findings	Example Publications
	Leader self-structure as impetus for motivation and development	Ties together leader self-efficacy, leader self-identity and other concerns of self to understand how ongoing motivation to lead and develop are changed.	Hannah, Woolfolk, & Lord, (2009)
	Specific developmental mechanisms	Role of deliberate practice	Lord & Hall (2005)
		Understanding of developmental trajectories	Lord, Hall, & Halpin (2011)
Criticisms of leader development approaches	Additional conceptualizations of leadership	Fails to include dynamic nature; or leader process theory	Fischer, Dietz, & Antonakis (2017)
		Fails to consider the full range of intelligence and role of thinking for leader performance and implications for development	Antonakis, Simonton, & Wai (2019)
	Self-development	Important emphasis on self-development that has been under researched	Boyce, Zaccaro, & Wisecarver (2010)
	Has not fully considered traits and interaction with development techniques	Role of individual traits in leader development	Atwater, Dionne, Avolio, Camobreco, & Lau (1999)
	Outcome measurement issues	Variations in definitions of leader and leadership development and the appropriate evidence that the leader has been developed.	Day, Fleenor, Atwater, Sturm, & McKay (2014)
	Mediating mechanisms measurement issues	Variations in measurement of development and the focus of leader development across theories Ex: Leader identity, Leader efficacy, leadership skills, etc.	Dinh et al. (2014)

Table 2: Developmental Experiences at Each Stage and Leader Development Indicators

Stages	Developmental Experiences	Useful skills for leadership	Leader development indicators
Preschool	❖ Attachment with Caregiver	● Interpersonal trust ● Sense of security to take on leadership roles ● Prosocial motives to lead	● Charismatic leadership and transformational leadership ● Leader emergence in teams ● Implicit leadership theory ● Leadership effectiveness
	❖ Play	● Cognitive competencies and experiential learning ● Prosocial behaviors (helping, cooperation) ● Interpersonal skills (communicating, social perspective taking, social dominance) ● Awareness of teamwork and collective dynamics	● Leadership behaviors (directing, managing, etc.) ● Potential for moral or ethical leadership
Childhood	❖ Cooperative learning experiences	● Teamwork and collaboration ● Intergroup relations ● Social cohesion ● Peer acceptance ● Communication	● Leadership behaviors ● Leader emergence in group settings
	❖ Participation in household chores	● Acquisition of responsibility ● Socialization and psychosocial functioning ● Prosocial behaviors (e.g., helping) ● Sense of accomplishment	● Leader emergence ● Servant or ethical leadership
	❖ Sibling interaction	● Leading or taking care of younger siblings ● Role modeling ● Communication ● Negotiation	● Leadership-related skills (e.g., managing, guiding) ● Leadership styles (task-oriented and relation-oriented)

Adolescence	❖ Extra-curricular activities	• Social learning in activities • Acquisition of organizing and coordinating skills • Sense of group belonging	• Leadership-related skills • Leader emergence • Leadership effectiveness • Leadership style identity
	❖ Peer interaction	• Dyadic friendship and social network • Social-emotional development Peer popularity	• leadership -related skills • Leader emergence
	❖ Parenting behaviors	• Learning caring and guiding skills from parents • Psycho-emotional development • The formation of self-concept	• Leadership performance • Leader emergence • Transformational leadership • Implicit leadership theory
	❖ Role models	• Social learning from role models • Establishment of self-identity • Moral development • Desire to be a role model	• Leadership behaviors • Motivation to lead • Ethical or moral leadership • Implicit leadership theory
Emerging adulthood	❖ Leadership courses	• Acquisition of leadership knowledge • Self-awareness of strength and weakness	• Leadership readiness • Implicit leadership theory
	❖ Leading in activities	• Exhibitory skills • Management capabilities • Leadership trail	• Accumulation of leadership experience • Leadership readiness
	❖ Internship and first job	• Application of leadership knowledge • Learning from supervisors as role model • Interpersonal skills	• Leadership-related capabilities (e.g. Multitask arrangement) • Implicit leadership theory
	❖ Romantic relationship	• Formation of interpersonal relations • Passion and commitment-related beliefs • Psychosocial identity	• Relational leadership • Leadership related skills (e.g., negotiation, conflict management)
Adulthood	❖ Leader development	• Upgradation of the knowledge system	• Leadership KSAs (knowledge, skills and

	programs	• Learning leadership techniques • Implementing takeaways from programs	capabilities)
	❖ Developmental challenges at work	• On-the-job learning and deliberate practice	• Development of strategic, cognitive and behavioral leadership skills
	❖ Marriage and parenthood	• Emotional and social skills • Self-regulation capability • Sense of responsibility • Conflict resolution strategies • Work-family enrichment	• Leadership-related skills • Leadership behaviors • Leader-follower relationship
	❖ Purpose-seeking activities	• Perception of personal emotion and feeling • Acquisition of personal intrinsic values • Mindful thinking • self-awareness	• Leadership effectiveness • Leadership behavior styles • Mindful leadership
Late adulthood	❖ Leadership succession	• Creating own legacy • Assessing leadership potential of subordinates • Decision making	• Leadership achievement review • Intergenerational succession of leadership
	❖ Leadership coaching	• Providing valuable advice • Authoring books or memoirs	• Mentoring younger leaders • Influential leadership to the public
	❖ Retirement	• Doing contribution as volunteers • Community service providing	• Volunteer leadership • Community leadership